

To: Art Slayton[a.slayton@erllc.com]; Way, Steven[way.steven@epa.gov]; Matt Francis[m.francis@erllc.com]; Carla Copeland[c.copeland@erllc.com]
Cc: Towle, Michael[Towle.Michael@epa.gov]; Guy, Kerry[Guy.Kerry@epa.gov]; Neville Kingham[neville@kinghamcsi.com]; Newhart, Gary[Newhart.Gary@epa.gov]; Kady, Thomas[Kady.Thomas@epa.gov]; Compton, Harry[Compton.Harry@epa.gov]
From: Powell, Greg
Sent: Fri 8/21/2015 10:25:56 PM
Subject: RE: Titration Report

Hi Art and Others:

I should be back in Durango sometime Sunday afternoon. Up to the mine Monday.

Based on the titration studies we should switch to CaOH. You should have gotten the lime addition calculations I forwarded from Neville Kingham. A metered slurry is the best way to add the lime. As we discussed earlier, stacking totes and circulating the slurry solution that will be gravity fed into the pipe above Pond One. Make up water should not be mine effluent, so a water truck will be needed to obtain potable water from Silverton.

It looks like you have gotten a good start on rental equipment to be utilized before the interim system is delivered; however, until equipment is delivered I suggest that the START double the lime dosage they are adding at Pond One. When equipment is in-place flow from the Gold King drainage should be diverted to the Red Bonita treatment ponds. I have concerns regarding the stability of the existing treatment ponds. If flow can be diverted to the Red Bonita ponds then actions can be taken to enhance the stability of the current treatment ponds that were installed during the emergency phase of the project.

Some issues that need to be evaluated or acted on:

1. Calculation of the capacity of the four current treatment ponds (USCG or START can do this);
2. Calculation of the capacity of the Red Bonita ponds (USCG or START can do this);
3. Adding another pump(s) in series to pump total fluids to the Red Bonita Ponds;
4. Excavation and stabilization of treatment sludges from ponds one and two at Red Bonita treatment ponds needs to be conducted asap. The ponds are needed for retention of influent waters;
5. Stopping the addition of NaOH and polymer once the lime system is put in-place;

6. Assessment of the lime silo that is onsite to evaluate whether it is functional and can be used for the treatment system;
7. Preparation of a pH monitoring plan for the revised system (START);
8. Evaluation of analytical results from recently submitted sample sludge samples from Ponds One and Two.

Those are my thoughts . I welcome any ideas or suggestions. Next week we need to put in maximum effort into getting the system to where we are discharging at a pH of 5.0 or greater.

Thanks:

Greg Powell

(513)607-1572 cell

From: Art Slayton [mailto:a.slayton@erllc.com]
Sent: Friday, August 21, 2015 4:10 PM
To: Way, Steven; Matt Francis; Carla Copeland
Cc: Towle, Michael; Guy, Kerry; Powell, Greg
Subject: RE: Titration Report

I will be up first thing in the morning. I am waiting for confirmation to have 4 pallets of Lime delivered tomorrow. Cement will be delivered in the morning. I am confirming with Vendor that can respond the quickest there availability to deliver turn-key based on conditions and status tomorrow. It should be a quick response, also waiting for confirmation.

Art Slayton

Response Manager

Environmental Restoration

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From: Way, Steven [<mailto:way.steven@epa.gov>]

Sent: Friday, August 21, 2015 12:54 PM

To: Matt Francis <m.francis@erllc.com>; Carla Copeland <c.copeland@erllc.com>; Art Slayton <a.slayton@erllc.com>

Cc: Towle, Michael <Towle.Michael@epa.gov>; Guy, Kerry <Guy.Kerry@epa.gov>

Subject: Fwd: Titration Report

Please plan accordingly to use lime as soon as possible as discussed yesterday and have a contingency of sufficient NaOH for a week. Hopefully the Omni recirculating will improve our efficiency w NaOH.

It appears that we need more lime soon.

Please acknowledge.

Steve

Sent from my iPhone

Begin forwarded message:

From: "Neville Kingham" <neville@kinghamcsi.com>
To: "Way, Steven" <way.steven@epa.gov>
Cc: "Powell, Greg" <Powell.Greg@epa.gov>, "Christner, Jan" <Jan.Christner@WestonSolutions.com>
Subject: FW: Titration Report

Steve, based upon the enclosed Titration report the following amounts of sodium hydroxide or calcium hydroxide should be used to reach the desired pH level. These calculations are based upon a 500 gallons per minute flow rate;

Sodium hydroxide

- pH 7.5, 1080 gallons of 25% per day
- pH 6, 930 gallons of 25% per day
- pH 5, 790 gallons of 25% per day

Calcium hydroxide

- pH 7.5, 790 lbs per day
- pH 6, 720 lbs per day
- pH 5, 500 lbs per day

Calcium hydroxide can be made into slurry and pumped

Remember this data was formulated from 1 grab sample, monitoring must continue for pH and floc development.

I strongly recommend going with calcium hydroxide,

Thanks,
Neville

Neville,

Please find the titration report attached. It is very informal as we discussed. Please let me

know if you would like me to create a more formal format, add additional information or revise information.

Thanks,

Moir Pryhoda
Weston Solutions, Inc.
1435 Garrison St, Ste 100
Lakewood, CO 80215
Ph: 303-729-6112
Cell: 508-904-7579

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